



Site-Specific Quality Assurance Project Plan (QAPP) Addendum 4.A

Phase II Environmental Site Assessment

**402 West Main Street
Cumberland, Kentucky 40823**

Grant Number BF-00D00112-0

Revision 0

This document and work performed under this Site-Specific QAPP Addendum 4.A is prepared in accordance with the EPA Region 4 Brownfields Program and the Generic QAPP document for the Cumberland Valley Area Development District.

Prepared for:

**Cumberland Valley Area Development District
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Prepared by:

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December 2013

A-1. Title & Approval Page

Site-Specific QAPP Addendum 4.A, December 2013, Revision 0, BF-00D00112-0
Phase II Environmental Site Assessment (ESA)
402 West Main Street, Cumberland, Kentucky

Site-specific Quality Assurance Project Plan (QAPP) Addendum 4.A is associated with the Generic QAPP, Revision 0, April 2013 for environmental site investigations, Cumberland Valley Area Development District, BF-00D00112-0. This Addendum is prepared in accordance with the EPA Region 4 Brownfields Program. Work described in this Addendum will be performed in accordance with the processes described in the "Generic QAPP, Environmental Site Investigations". AMEC Environment & Infrastructure prepared this Addendum and the Generic QAPP, and the grantee is the Cumberland Valley Development District.

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Date: 12-20-2013

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A-3. Distribution List
Site-Specific QAPP Addendum 4.A, December 2013, Revision 0, BF-00D00112-0
Phase II ESA
402 West Main Street, Cumberland, Kentucky

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AMEC Field Team Coordinator: Sarah Donaldson; field team will receive a copy of and will follow this site-specific QAPP Addendum

Laboratory (ACM, lead-based paint):

EMSL Analytical, Inc.
2001 East 52nd Street
Indianapolis, IN 46205
Project Manager: Sheryl Steinmetz
317-803-2997

Laboratory (mold):
EMLab P&K
655 West Grand Avenue
Suite 205
Elmhurst, IL 60126
Project Manager: Nathan Keown
877-711-8400

A-4. Project - Task Organization

Project organization and responsibilities are the same as those provided in the Generic QAPP, except the analytical laboratories that are specified in this Addendum. The laboratories for analyses of samples from the Phase II ESA have been specified in Section A-3. Specific organizational responsibilities are provided in Section A-4 of the Generic QAPP.

A-5. Problem Definition/Background

Project Description & Site History

The property is located at 402 West Main Street, in Cumberland, Harlan County, Kentucky and is owned by the City of Cumberland. The property is located in a predominantly commercial area. The property is currently used as City Hall and the building dates from the 1920s. The building was donated to the City of Cumberland by the Guaranty Deposit Bank. **Figure 1** is a site location map. The current plan is to refurbish the building to allow for full use.

The following structure is located on the subject property:

Type & Stories	Walls	Foundation	Roof	Condition
Office – 2 Stories	brick	concrete	unknown	fair

The subject property is bound to the north by W. Main Street, to the south by Caudill Street, and to the east by Isaac Street. Paved areas are located to the west, east and south sides of the building.

The property possesses utility services as identified below:

Utility	No	Yes	Source Provider Information if Yes
Potable Water		X	City of Cumberland
Sanitary Sewer		X	City of Cumberland
Septic System	X		
Natural Gas	X		
Electricity		X	Kentucky Utilities
Fuel Oil	X		

The current uses of the majority of immediately adjoining properties are residential and commercial and are identified below:

Direction	Property Description
North	Tri City Clubhouse (Boys and Girls Club?)
Northwest	Lillian's Novo Center
West	Thrift Bit Service
Southwest	Residential
South	Residential
Southeast	Residential
East	Commercial
Northeast	Cumberland Missionary Baptist Church

AMEC conducted a Phase I environmental site assessment (ESA) of this property (AMEC 2013) and reported the following environmental concern:

Due to the age of the building structure, potential environmental concerns include asbestos containing materials (ACM) and lead-based paint (LBP). Also, during the site visit it was observed that water may have been leaking into the building due to areas of the ceiling that were failing and exhibiting possible mold. Ceiling tile and drywall were damaged and had fallen onto the floors.

Other hazardous materials of concern associated with building materials or fixtures may also be present. If the building is to be renovated or demolished, appropriate removal and disposal measures for these materials will need to be followed and documented.

AMEC and CVADD are proposing to use EPA Brownfields Hazardous Substances Assessment Grant funds to conduct a Phase II ESA.

Field work will be conducted in accordance with AMEC Standard Operating Procedures (Appendix A of the Generic QAPP) and applicable regulations. Data from the Phase II ESA will be used, along with any required remedial actions, to support planned site redevelopment.

A-6. Project/Task Description/Timeline

The proposed Phase II ESA will consist of ACM, LBP, and mold surveys of the existing building. Data from the Phase II ESA proposed in this Addendum will be used, along with any required remedial actions, to support site redevelopment. ACM survey data is considered critical data, while LBP and mold survey data are considered supporting and therefore non-critical.

ACM Regulatory Requirements

ACM is subject to a variety of regulatory requirements summarized as follows:

- 40 CFR 61 - A National Emissions Standards for Hazardous Air Pollutants (NESHAPS) requires removal of ACM from buildings prior to renovation or demolition. This typically requires an intrusive investigation to identify ACM hidden in floors, wall, ceilings, etc.
- 40 CFR 763 – EPA Asbestos Hazard Emergency Response Act (AHERA) requires management of asbestos in schools and provides a standard of care for asbestos surveys. AHERA surveys are typically baseline surveys; they do not identify several types of NESHAP regulated materials (e.g. hidden or exterior ACM)

- 29 CFR 1910.1101 – U.S. Occupational Safety & Health Administration (OSHA) asbestos regulations require management of asbestos in buildings to protect workers. AHERA surveys meet the OSHA requirement to identify ACM in buildings.
- Other Federal, State and Local regulations governing ACM licensure, ACM removal, permitting, etc.

Current federal, state and local regulations require that property owners, prior to demolition work on existing properties, conduct surveys to locate and identify ACM (e.g. a “Good Faith” or NESHAP Survey). A “good faith” NESHAP ACM survey is required to notify bidding contractors of ACM locations and quantities.

The purpose of this project is to perform ACM services as necessary to comply with the general requirements for NESHAP, AHERA, OSHA, and/or other regulatory requirements.

Basic ACM Survey Protocol

Upon arrival at the Site, AMEC will conduct a tail-gate safety meeting. We conduct a tail-gate safety meeting at the start of work, when a new person joins the work group, when activities change from those planned, and at the beginning of each work day.

A State licensed and/or AHERA certified ACM inspector will survey the building to identify and evaluate the presence and quantity of ACM. ACM samples will only be collected where safety of the inspector(s) can be assured. The evaluation for ACM is limited to the following scope assumptions.

1. A State licensed and/or certified ACM inspector to survey the subject building to identify and evaluate the presence and quantity of ACM. Sampling of these materials may damage small areas of roofs, walls and floors.
2. Representative bulk samples of homogenous materials will be collected and analyzed at a designated laboratory by polarized light microscopy (PLM) at standard turn-around time (TAT) of 10 working days. PLM analysis of some non-friable organically bound ACM materials (NOB) such as floor tiles, roofing, etc. may be inconclusive for ACM. Transmission electron microscopy (TEM) analysis provides lower asbestos detection limits, if needed.
3. ACM samples will be collected to generally categorize homogenous materials. The entire inventory of collected samples may not require laboratory analysis. Initially, we will analyze one sample per material. If the first sample contains ACM, remaining samples will not be analyzed (positive stop protocol). If the first sample is determined not to contain ACM, the next sample of the like material will be analyzed, and so on until ACM is either identified (at which point additional analyses will not be performed) or the material is found to contain no ACM.
4. ACM may be hidden in walls, ceilings, floors, etc., that are not identified by AHERA surveys. AHERA surveys also exclude exterior ACM such as roofing and caulking. Intrusive NESHAP surveys can help identify these materials. For the building at this Site, safety concerns must be considered before an area is accessed or a sample is collected.

5. Building materials such as walls, roofing, floor coverings, caulking, etc. may contain many types or layers of ACM, particularly in older buildings. Under the AHERA protocol, the inspector presumes the entire area contains ACM based on a minimal number of positive samples. Additional sampling can further delineate the extent of these materials, if needed.
6. A report will be prepared to summarize the findings of the survey. A State Licensed or AHERA ACM Inspector/Management Planner will prepare the report, and a representative of AMEC's Asbestos Safety Board will review the document.
7. The report will include the following information:
 - Building Description
 - Survey Methods
 - Abatement Recommendations
 - Laboratory Analytical Results
 - Limitations.

LBP Survey

The LBP survey will be conducted either using a field X-Ray Fluorescence (XRF) device or by collecting representative samples of paint for laboratory analyses. The U.S. Department of Housing and Urban Development definition for lead-based paint is as follows: paint or other surface coatings that contain lead equal to or exceeding 1.0 milligram per square centimeter or 0.5 percent by weight or 5,000 parts per million (ppm) by weight.

When lead containing paint is present in a building, the U.S. Department of Labor (29 CFR 1926.62), along with many state regulations, require some form of controls to be followed during any construction work where an employee may be occupationally exposed to lead to include but not limited to the following: (1) demolition or salvage of structures where lead or materials containing lead are present, (2) new construction, alteration, repair, or renovation of structures, substrates, or portions thereof that contain lead, or materials containing lead, (3) removal or encapsulation of materials containing lead, (4) lead contamination/emergency cleanup, (5) transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed, and (6) maintenance operations associated with construction activities. These worker protection standards consider any detectable concentration of lead to be a potential hazard during such construction activities. Therefore, contractors performing construction work should be aware of the lead construction standard and provide proper worker protection.

Mold Survey

AMEC will visually inspect the building for suspected visible growth of fungal structures (mold), particularly in the vicinity of any areas with reported moisture intrusion. The inspection will be a non-destructive visual inspection for evidence of moisture incursion and fungal reservoirs and/or amplifiers in the facility. The presence and extent (affected material types and estimated quantities) of visible fungal contamination on accessible building materials within the affected area of the building will be determined. A reasonable effort will be made to identify mold-contaminated building materials. However, this inspection may not identify all possible fungal

reservoirs or growth sites, as certain building materials may be hidden by walls, finishes, and equipment.

Timeline

The projected timeline is as follows: (1) site-specific QAPP Addendum review/approval: approximately 30 days from submittal to the EPA, (2) field activities and sampling: 10 business days from initiation of field work, (3) laboratory turnaround time: 10 business days, and (4) reporting activities to be completed 30 days after laboratory results are available. Total project timeline is approximately 120 days, depending upon EPA review time.

A-7. Special Training Requirements & Special Certifications

Only a Kentucky Division for Air Quality accredited individual/contractor will be used to survey for ACM. Accreditation of asbestos professionals is covered by 401 Kentucky Administrative Regulations (KAR) 58:005. The LBP survey will be conducted by an accredited Lead Risk Assessor. Other special training requirements and special certifications are provided in the Generic QAPP.

A-8. Documentation and Records

Documentation and records requirements are discussed in the Generic QAPP.

B-1. Sampling Process Design & Site Figures

The scope of work for this Site involves ACM, LBP, and mold surveys. The ACM survey will be conducted in general per EPA AHERA and NESHAP requirements and OSHA 29 CFR 1910.1001 regulations, where applicable. This will include a visual assessment and collecting and analyzing suspect asbestos containing building materials. Minimum sample requirements are as dictated by the regulations discussed in Section A.6. The deliverable will be a written report with sample and survey results, including budgetary estimates for potential removal of ACM, LBP, and mold. **Figure 2** is an aerial photograph showing the site building. Since minimum sample quantities, survey methodology, and data points are determined in the field during the surveys, a proposed sampling and analysis table and rationale are not provided.

It is not anticipated that out of the ordinary communication or instructions will need to occur between the field staff/contractor and the laboratory.

B-2. Sampling & Analytical Method Requirements

ACM Survey

The asbestos survey will be performed by an appropriately trained State licensed and/or AHERA certified ACM inspector, in accordance with a sampling protocol appropriate for future building disposition. The sampling protocol is modeled after 40 CFR 61, 40 CFR 763.86, and 29 CFR 1926.1101.

ACM Sample Documentation

For asbestos samples collected during the survey, a unique identification number will be employed. Samples will be collected by carefully removing small portions of the suspect material with a sharp knife or other hand tool suitable for the material being sampled. Each sample will be placed in a labeled container immediately after collection. Sample containers will then be transported to the laboratory. Data pertinent to each sample (e.g., date, sample number, material description, and material category) will be recorded on a field data sheet.

ACM Sample Chain-of-Custody Forms

All sample shipments will be accompanied by a chain-of-custody (COC) record to document sample collection and shipment to the laboratory for analysis. COC form(s) will be completed and sent with the samples for each shipment. The COC form will identify the contents of each shipment and maintain the custodial integrity of the samples. Until the samples are delivered to the laboratory, the custody of the samples will be the responsibility of the ACM survey contractor. The sampling team leader or designee will sign the chain-of-custody form in the "relinquished by" box and note date and time.

ACM Decontamination Procedures

After each sample is collected the sampling instrument will be wiped with a clean moist cloth to decontaminate the tool and minimize the potential release of asbestos fibers or contamination of subsequent samples.

ACM Laboratory Methods

Asbestos bulk samples, copies of field data sheets, and chains-of-custody will be delivered to a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory for asbestos analysis (EMSL, NVLAP Lab Code 200188-0). As specified in 40 CFR Chapter I Part 763, Subpart F, Appendix A, each sample will be analyzed using Polarized Light Microscopy (PLM) with dispersion staining techniques, in accordance with EPA Method 600/R-93/116. The method involves testing of bulk building materials for asbestos by performing a visual estimation. This method is the most widely used method for estimating asbestos in bulk building materials. However, it might require a more detailed method like point counting or TEM for accurate estimation of asbestos in samples with low asbestos concentration. The method separates the sample material into various layers based on their morphology and then detects for the presence of the different asbestos fibers in each of these layers. The detection limit for this type of analysis is approximately one percent (by volume). Materials containing more than one percent asbestos are considered to be ACM. Select samples may be analyzed by point count methods to further quantify the asbestos contents.

The actual number of samples to be collected and locations will be determined in the field. A specific sampling and analysis plan or table is not considered necessary, since site conditions will dictate sampling requirements. Enough laboratory supplies will be ordered to accommodate whatever sampling is needed. Such an approach allows flexibility to meet field requirements, based on assessment results, and is in accordance with the EPA Triad methodology.

Lead-Based Paint Survey

An accredited Lead Risk Assessor will conduct a lead-containing paint investigation, where and when considered appropriate, to determine the presence of lead-containing paint coatings within a facility. The inspection will include an inventory of the color, component, and substrate of the painted surface to be tested. If tests are performed in the field a hand-held XRF Spectrum Analyzer will be used. Calibration validation checks will be conducted at the beginning and end of the inspection. The instrument provides a nearly instant measurement of lead content within the painted surface in milligrams per square centimeter (mg/cm^2). The XRF will be calibrated against a National Institute of Standards and Technology (NIST) testing block with known concentrations of lead across a range of values from zero to $3.5 \text{ mg}/\text{cm}^2$. A minimum of five calibration readings are typically taken before and after sample collection for quality control purposes.

If lead bulk samples are collected, a unique identification number will be employed. Samples will be collected by carefully removing small portions of the paint with a sharp knife or other hand tool suitable for the material being sampled. Each sample will be placed in a labeled plastic container immediately after collection. Sample containers will then be placed in a large re-sealable plastic bag for transportation to the laboratory. Data pertinent to each sample (e.g., date, sample number, color of paint, and substrate) will be recorded on a field data sheet.

All sample shipments for analyses will be accompanied by a chain-of-custody record to document sample collection and shipment to the laboratory for analysis. Form(s) will be completed and sent with the samples for each shipment. The chain-of-custody form will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until the samples are delivered to the laboratory, the custody of the

samples will be the responsibility of AMEC. The sampling team leader or designee will sign the chain-of-custody form in the "relinquished by" box and note date and time.

EMSL is accredited for environmental lead by the American Industrial Hygiene Association Laboratory Accreditation Program (Laboratory ID 157245).

Mold Survey

If appropriate, and based on the results of the visual inspection, AMEC may conduct sampling for biological contaminants, which may include, but not be limited to:

- Fungal structure samples collected by the culture plate impactor technique (for cultures to measure viable fungi concentrations). A Bio-aerosol Impactor will be employed to collect air samples on malt extract agar for general hydrophilic fungi and dichloran glycerol agar (DG-18) for xerotolerant fungi. The samples will be shipped to a qualified laboratory where samples will be incubated and analyzed for culturable fungi.
- The spore trap technique will be used to collect samples of fungal structures present in the indoor air. The samples will be shipped to a qualified laboratory where Air-O-Cell cassettes will be analyzed by optical microscopy and will include enumeration and presumptive identification of fungi. Identification beyond the genus level is not always possible using this sampling technique.
- Surface fungal structure samples of visible fungal growth may be collected by tape-lift or direct wipe method. The samples will be shipped to a qualified laboratory where samples will be incubated and analyzed for culturable fungi.

If appropriate, as a means to verify the function and performance of the building's Heating, Ventilation and Air Conditioning system, direct reading air quality instruments may be used to collect dust, air temperature, relative humidity, and carbon dioxide measurements for comparison to the recommendations of the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE) Standard 55-1992 and 1995a, *Thermal Environmental Conditions for Human Occupancy* and ASHRAE Standard 62-1999, *Ventilation for Acceptable Indoor Air Quality*. Measurement methods include:

- The TSI Incorporated (TSI) Model 8520 DustTrak Direct Reading Aerosol Monitor, or equivalent, will be employed to measure concentrations of dust particles in the 0.1 to 10 and 0.1 to 4-micron diameter ranges. The equipment includes a cyclone filter to measure the 0.1 to 4 micron particulate fraction.
- The TSI Model 8762 IAQ Calc Direct Reading Air Quality Monitor, or equivalent, will be used to collect air temperature, relative humidity, and carbon dioxide measurements for comparison to ASHRAE comfort standards.

Equipment used will be calibrated and maintained per manufacturer's instructions. Field calibrations will be documented in a field log book or equivalent record. In order to assist in verifying and resolving any abnormal indoor air quality findings, outdoor "background" samples and measurements will also be collected for comparison to indoor results because fungal structures typically originate from natural sources outdoors and fresh air is drawn into the building.

The AMEC field team coordinator must assure that all field team members and subcontractors follow appropriate sections of the QAPP, including Sections A-8, B-2, B-3, B-5, B-7, and B-10. The field team coordinator will be responsible for assuring Standard Field Operating Procedures are followed (Appendix A of the Generic QAPP) and for completing any corrective actions (e.g., replacing field equipment that does not meet calibration requirements).

B-3. Sample Handling & Custody Requirements

Sample handling and custody requirements are provided in the Generic QAPP.

B-4. Analytical Methods & Requirements

Analytical methods specific to this project are given in Section B-2.

B-5. Field Quality Control Requirements

Field quality control requirements are discussed in the Generic QAPP and in appropriate EPA and OSHA asbestos regulations.

B-6. Laboratory Quality Control Requirements

Laboratory quality control requirements in general are covered in the Generic QAPP. Requirements contained in appropriate EPA and OSHA asbestos regulations will also be followed. PLM quality assurance/quality control is described in Section 3.0 of EPA 600/R-93/116.

B-7. Field Equipment & Corrective Action

Field equipment and corrective action requirements are covered in the Generic QAPP. Specific to this Addendum, the following field equipment will be used during the field activities:

- Asbestos inspector's kit:
 - Hammer, needle nose pliers, screwdriver, paper towels, spray bottle, sponges, box cutter, small ax or chisel, spray adhesive, caulk/spackling for patch, duct tape, ladder
- Hand-held XRF device, if applicable
- Hand tools for LBP sampling, if applicable
- Equipment to sample mold, if applicable
- Decontamination materials (Alconox or equivalent and deionized water)
- Paper towels
- Ziploc bags
- Sharpies
- Field Book
- Nitrile gloves
- Safety glasses

- Hard hat, if required
- Camera
- Laboratory-supplied coolers with sample jars & bottles
- Packing tape
- Site-specific Health & Safety Plan
- Ice as needed.

B-8. Lab Equipment & Corrective Action

Laboratory equipment and corrective action requirements are those provided in the Generic QAPP and those necessary to be in accordance with EPA Method 600/R-93/116 on PLM techniques.

B-9. Analytical Sensitivity & Project Criteria

Analytical sensitivity and project criteria are in accordance with EPA Method 600/R-93/116 for PLM and with the Generic QAPP for lead-based paint.

B-10. Data Management & Documents

Addendum 4.A provides site-specific information not included in the Generic QAPP, e.g., the name of the laboratories to be used and a list of field sampling equipment.

C-1. Assessments & Response Actions

Information and protocols on assessments and response actions are provided in the Generic QAPP and in Section 3.0 of EPA 600/R-93/116 for asbestos sampling/analysis.

C-2. Project Reports

Upon completion of the project, the following documentation will be submitted in a report for the surveys:

1. Discussion of site background
2. Discussion of field & sampling procedures/survey methods used
3. Summary of sample results
4. Tables and figures, as appropriate, showing sample locations and results
5. Copies of all chain of custody forms
6. Analytical reports
7. Budget estimate for removal of ACM, LBP, and/or mold.

Tables in the report will contain information on sample identification, location, and results, type and condition of ACM, quantity, whether the ACM is friable or non-friable, lead concentrations in XRF analyses (if applicable), and % asbestos or if asbestos was not detected.

Copies of draft reports will be forwarded to CVADD for review. Upon receipt of comments, AMEC will finalize the reports for submittal to EPA and the appropriate Kentucky agency.

The assessment and report information developed from this site-specific QAPP Addendum is a single occurrence and does not represent modifications or additions that need to be tracked or incorporated into the generic QAPP.

D-1. Field Data Evaluation

General discussion of field data evaluation is provided in the Generic QAPP. Data from the surveys at the Site will be tabulated and compared to appropriate state and federal criteria.

D-2. Laboratory Data Evaluation

General discussion of laboratory data evaluation is provided in the Generic QAPP. Data from the surveys at the Site will be tabulated and compared to appropriate state and federal criteria.

D-3. Data Usability and Project Evaluation

Data evaluation for the surveys at the Site is a single occurrence and does not represent modifications or additions that need to be tracked or incorporated into the generic QAPP.

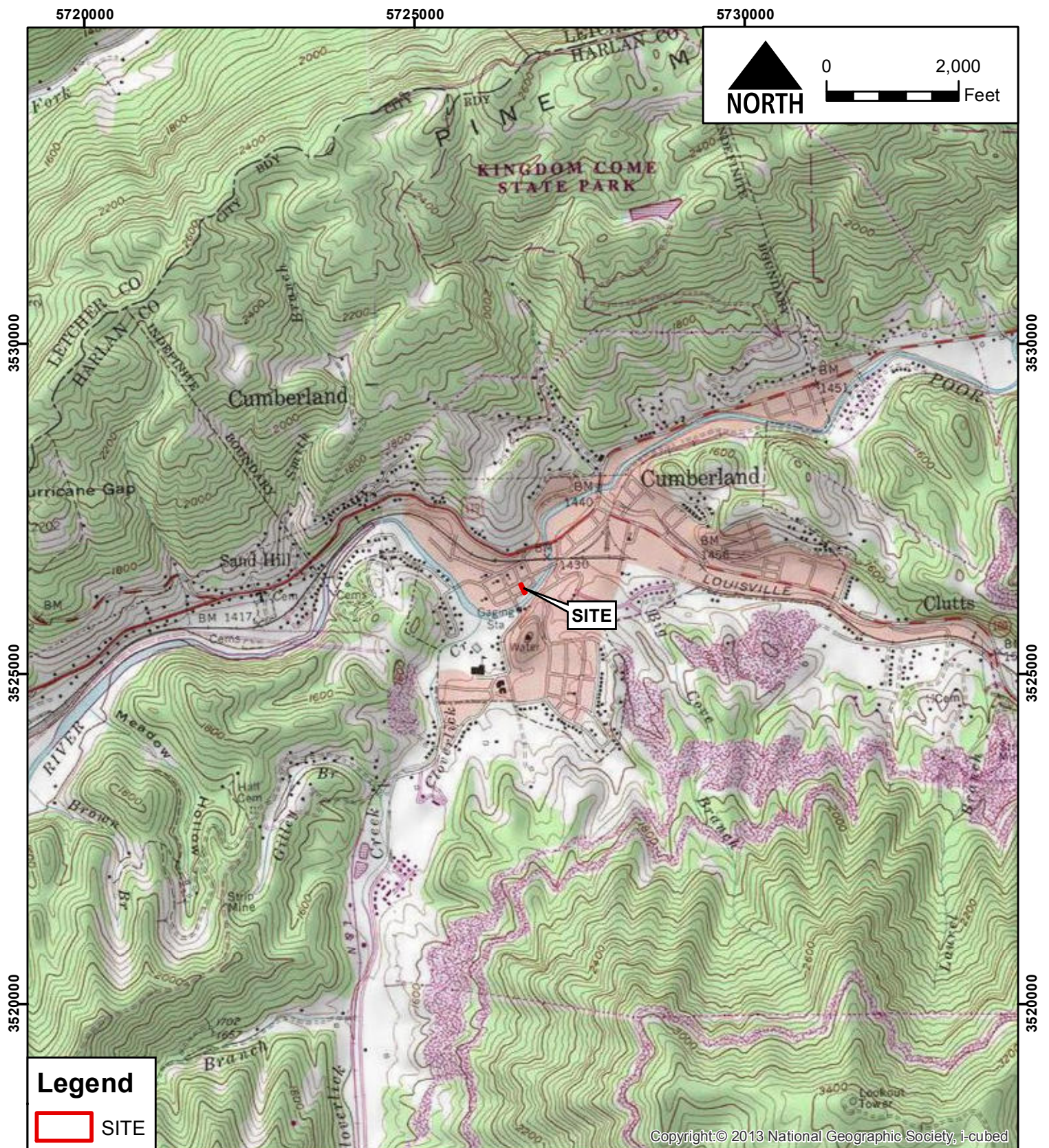
References


AMEC, 2013. *Phase I Environmental Site Assessment, 402 West Main Street, Cumberland, Kentucky 40823*. December 2013.

EPA, 1993. *Method for the Determination of Asbestos in Bulk Building Materials*. EPA/600/R-93/116, July 1993.


EPA Region 4, *Brownfields Quality Assurance Project Plans (QAPPs), Interim Instructions, Generic QAPP & Site-Specific QAPP Addendum for Brownfields Site Assessments and/or Cleanups*, Revision No. 3, July 13, 2010.

FIGURES



CVADD	Cumberland Valley Development District	MAP BY: daniel.conn CHK'D BY: KR	PHASE I ENVIRONMENTAL SITE ASSESSMENT	TIME: 2:02:14 PM DATE: 12/23/2013
AMEC Environment & Infrastructure 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, KY 40299		PROJECTION: NAD 1983 StatePlane Kentucky FIPS 1600 Feet SCALE: 1 inch = 2,000 feet		PROJECT #: 779980001 FIGURE #: 1



CVADD	Cumberland Valley Development District	MAP BY: daniel.conn	PHASE I ENVIRONMENTAL SITE ASSESSMENT	TIME: 2:04:08 PM
		CHK'D BY: KR		DATE: 12/23/2013
AMEC Environment & Infrastructure 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, KY 40299		PROJECTION: NAD 1983 StatePlane Kentucky FIPS 1600 Feet	402 WEST MAIN STREET CUMBERLAND, KY	PROJECT #: 779980001
		SCALE: 1 inch = 50 feet		FIGURE #: 2